



# **STIC Search Report**

## **EIC 1700**

**STIC Database Tracking Number: 216092**

**TO: Rip A Lee**  
**Location: Remsen 10a21**  
**Art Unit : 1713**  
**February 26, 2007**  
**Phone: 571-272-1104**  
**Serial Number: 10 / 537677**

**From: Jan Delaval**

**Location: EIC 1700**  
**Remsen 4a30**  
**Phone: 571-272-2504**  
**jan.delaval@uspto.gov**

### **Search Notes**

## SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: Lee, R. A. Examiner #: 78680 Date: FEB 21, 2002  
 Art Unit: 1713 Phone Number: 2-1104 Serial Number: 40/537,677  
 Mail Box and Bldg/Room Location: Room 10A21 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

\*\*\*\*\*

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: ORGANOMETALLIC TRANSITION METAL COMPOUND ...

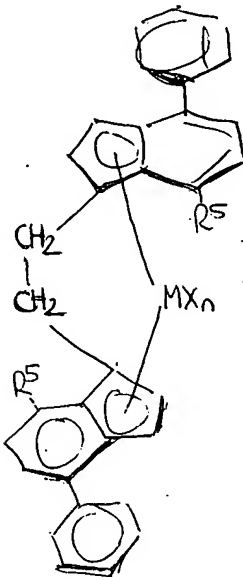
Inventors (please provide full names): SCHULTE, J. OKUMURA, Y.  
SCOTT, J. (see attached bibliography)

Earliest Priority Filing Date: DEC 06, 2002

\*For Sequence Searches Only\* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

Please search for the following compound,

ethylene bis((7-methyl-4-phenyl)indenyl)zirconium dichloride  
 ethordyl bis((7-methyl-4-phenyl)indenyl)zirconium dichloride

 $R^5 \neq H$ SCIENTIFIC REFERENCE BR  
Sci & Tech Inf. Cntr

FEB 21 REC'D

Pat. &amp; T.M. Office

## STAFF USE ONLY

Searcher: [Signature]  
 Searcher Phone #: 22504  
 Searcher Location: \_\_\_\_\_  
 Date Searcher Picked Up: 2/26/02  
 Date Completed: 2/26/02  
 Searcher Prep & Review Time: \_\_\_\_\_  
 Clerical Prep Time: 20  
 Online Time: + 50

## Type of Search

NA Sequence (#) \_\_\_\_\_  
 AA Sequence (#) \_\_\_\_\_  
 Structure (#) ☒  
 Bibliographic \_\_\_\_\_  
 Litigation ☒  
 Fulltext \_\_\_\_\_  
 Patent Family \_\_\_\_\_  
 Other \_\_\_\_\_

## Vendors and cost where applicable

STN ☒  
 Dialog \_\_\_\_\_  
 Questel/Orbit \_\_\_\_\_  
 Dr.Link \_\_\_\_\_  
 Lexis/Nexis \_\_\_\_\_  
 Sequence Systems \_\_\_\_\_  
 WWW/Internet \_\_\_\_\_  
 Other (specify) \_\_\_\_\_

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STRUCTURE FILE UPDATES: 25 FEB 2007 HIGHEST RN 923060-60-0  
DICTIONARY FILE UPDATES: 25 FEB 2007 HIGHEST RN 923060-60-0

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TSCA INFORMATION NOW CURRENT THROUGH June 30, 2006

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REGISTRY includes numerically searchable data for experimental and  
predicted properties as well as tags indicating availability of  
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<http://www.cas.org/ONLINE/UG/regprops.html>

=> d l48 ide can tot

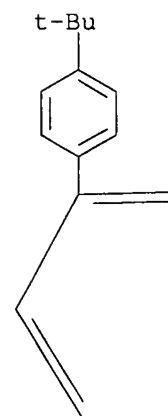
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RN 710280-69-6 REGISTRY  
ED Entered STN: 15 Jul 2004  
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CI CCS  
SR CA  
LC STN Files: CA, CAPLUS

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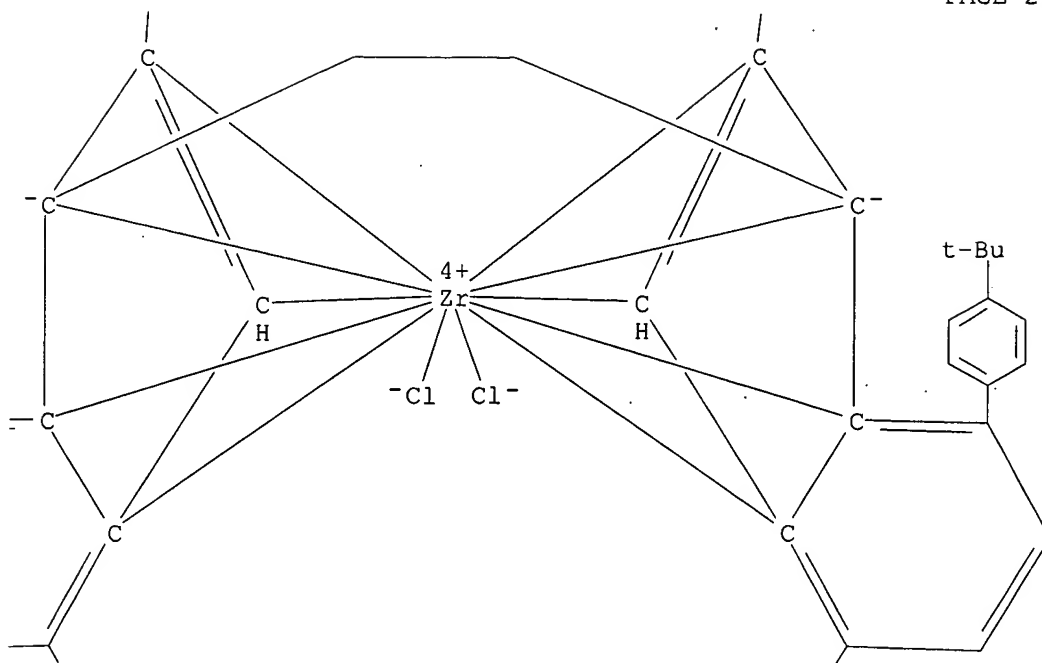
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PAGE 2-B



PAGE 3-B

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1 REFERENCES IN FILE CA (1907 TO DATE)  
 1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 141:72039

L48 ANSWER 2 OF 2 REGISTRY COPYRIGHT 2007 ACS on STN  
 RN 709675-31-0 REGISTRY  
 ED Entered STN: 14 Jul 2004  
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 LC STN Files: CA, CAPLUS, USPATFULL

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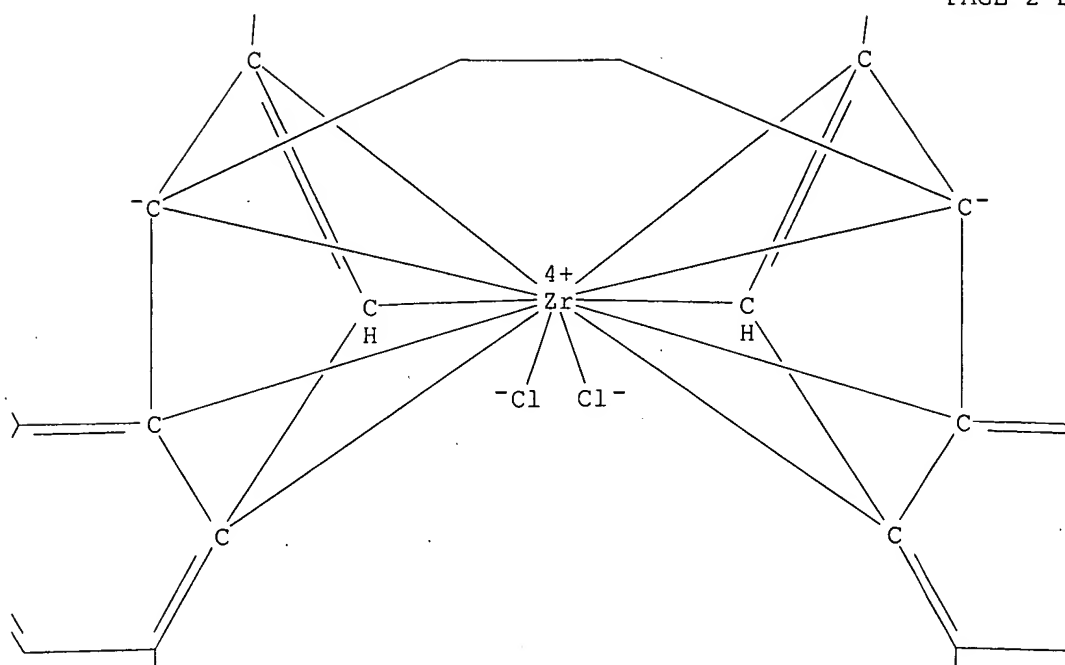
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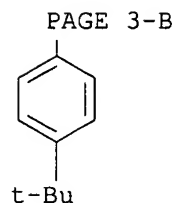
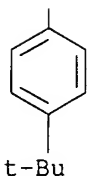


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PAGE 2-C





\*\*PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT\*\*

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1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 141:72034

=> fil uspatful

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CA INDEXING COPYRIGHT (C) 2007 AMERICAN CHEMICAL SOCIETY (ACS)

FILE COVERS 1971 TO PATENT PUBLICATION DATE: 22 Feb 2007 (20070222/PD)  
FILE LAST UPDATED: 22 Feb 2007 (20070222/ED)  
HIGHEST GRANTED PATENT NUMBER: US7181769  
HIGHEST APPLICATION PUBLICATION NUMBER: US2007044192  
CA INDEXING IS CURRENT THROUGH 22 Feb 2007 (20070222/UPCA)  
ISSUE CLASS FIELDS (/INCL) CURRENT THROUGH: 22 Feb 2007 (20070222/PD)  
REVISED CLASS FIELDS (/NCL) LAST RELOADED: Aug 2006  
USPTO MANUAL OF CLASSIFICATIONS THESAURUS ISSUE DATE: Aug 2006

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L66 ANSWER 1 OF 1 USPATFULL on STN  
AN 2006:144826 USPATFULL  
TI Organometallic transition metal compound, biscyclopentadienyl ligand system, catalyst system and process for preparing polyolefins  
IN Schulte, Jorg, Frankfurt, GERMANY, FEDERAL REPUBLIC OF  
Schottek, Jorg, Frankfurt, GERMANY, FEDERAL REPUBLIC OF  
Okumura, Yoshikuni, Kanagawa, JAPAN  
PA Bassell Polyolefine GmbH, Frankfurt Am Main, GERMANY, FEDERAL REPUBLIC OF, 65926 (non-U.S. corporation)  
PI US 2006122345 A1 20060608  
AI US 2003-537677 A1 20031202 (10)  
WO 2003-EP13553 20031202  
20050606 PCT 371 date  
PRAI DE 2002-10257332 20021206  
US 2003-444595P 20030203 (60)  
DT Utility  
FS APPLICATION  
LREP CONNOLLY BOVE LODGE & HUTZ, LLP, P O BOX 2207, WILMINGTON, DE, 19899, US  
CLMN Number of Claims: 12  
ECL Exemplary Claim: 1  
DRWN No Drawings  
LN.CNT 1415  
CAS INDEXING IS AVAILABLE FOR THIS PATENT.  
AB The present invention relates to organometallic transition metal compounds of formula (I) where M.sup.1 is an element of group 3, 4, 5 or



6 of the Periodic Table of the Elements or the lanthanides, X are identical or different and are each halogen, hydrogen, C.sub.1-C.sub.20-alkyl, C.sub.2-C.sub.20-alkenyl, C.sub.6-C.sub.22-aryl, alkylaryl or arylalkyl each having from 1 to 10 carbon atoms in the alkyl part and from 6 to 22 carbon atoms in the aryl part, --OR.sup.6 or --NR.sup.6R.sup.7, where two radicals X may also be joined to one another, n is a natural number from 1 to 4 which corresponds to the oxidation number of M.sup.1 minus 2, R.sup.1 is hydrogen or a C.sub.1-C.sub.40 radical, R.sup.2 is a substituted or unsubstituted C.sub.6-C.sub.40-aryl radical or C.sub.2-C.sub.40-heteroaromatic radical containing at least one heteroatom selected from the group consisting of O, N, S and P, R.sup.3 is hydrogen or a C.sub.1-C.sub.40 radical, or the radicals R.sup.2 and R.sup.3 together form a ring system, R.sup.4 is hydrogen or a C.sub.1-C.sub.40 radical, R.sup.5 is a C.sub.1-C.sub.40 radical, and Z is a divalent group CR.sup.8R.sup.9--CR.sup.10R.sup.11, where R.sup.8, R.sup.9, R.sup.10 and R.sup.11 are identical or different and are each hydrogen or a C.sub.1-C.sub.40 radical, biscyclopentadienyl ligand systems having such a substitution pattern, catalyst systems comprising at least one of the organometallic transition metal compounds of the present invention, a process for preparing polyolefins by polymerization or copolymerization of at least one olefin in the presence of one of the catalyst systems of the present invention and the use of the biscyclopentadienyl ligand systems of the present invention for preparing organometallic transition metal compounds. ##STR1##

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

IT 709675-31-0P

(metallocene catalysts for propylene polymerization)

RN 709675-31-0 USPATFULL

CN Zirconium, dichloro[1,2-ethanediylbis[(1,2,3,3a,7a-η)-4-[4-(1,1-dimethylethyl)phenyl]-2,7-dimethyl-1H-inden-1-ylidene]]- (9CI) (CA INDEX NAME)

PAGE 1-B

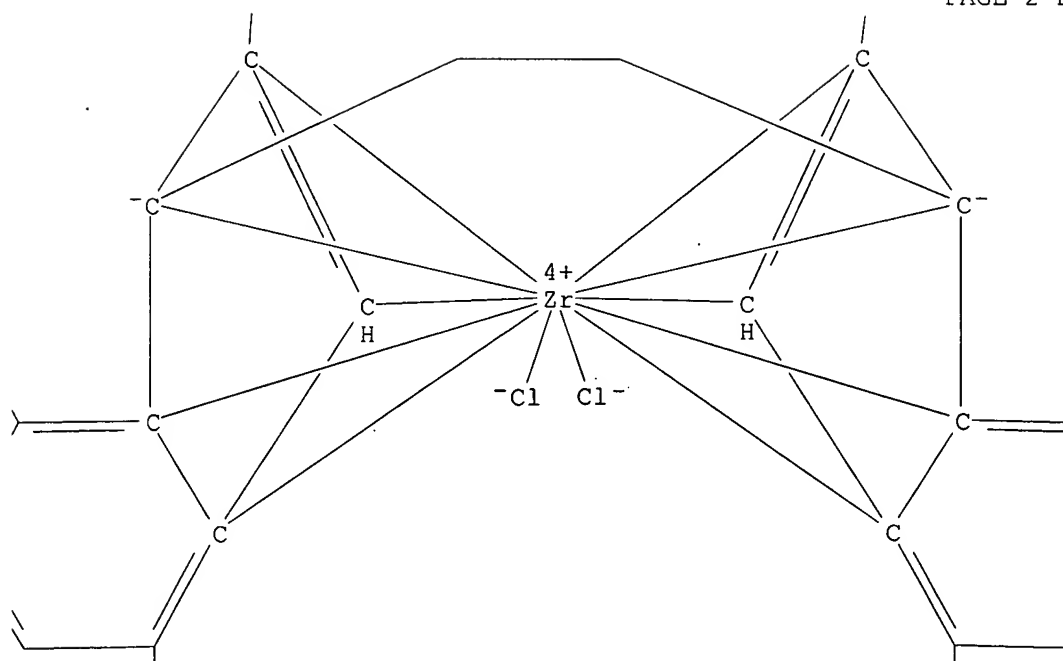
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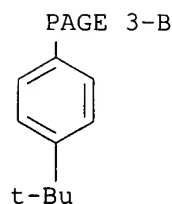
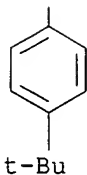
PAGE 2-A



PAGE 2-B



PAGE 2-C



=> fil hcaplus

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FILE LAST UPDATED: 25 Feb 2007 (20070225/ED)

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=> d 165 bib abs hitstr retable tot

L65 ANSWER 1 OF 2 HCAPLUS COPYRIGHT 2007 ACS on STN

AN 2004:515558 HCAPLUS

DN 141:72039

TI Organometallic transition metal compound, biscyclopentadienyl ligand, catalyst system, and preparing polyolefins

IN Schulte, Joerg; Schottek, Joerg; Okumura, Yoshikuni

PA Basell Polyolefine GmbH, Germany

SO PCT Int. Appl., 42 pp.

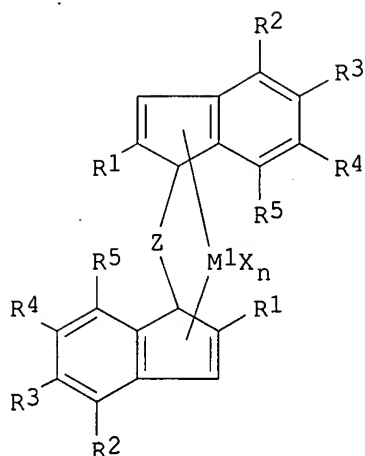
CODEN: PIXXD2

DT Patent

LA English

FAN.CNT 2

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	US 2003-444595P	P	20030203	<--	
	WO 2003-EP13553	W	20031202	<--	
OS	MARPAT 141:72039				
GI					



I

AB The organometallic transition metal compds. have formula I, where M1 = Group 3, 4, 5 or 6 element or the lanthanides, X = halogen, H, C1-20-alkyl, C2-C20-alkenyl, C6-C22-aryl, alkylaryl or arylalkyl each having 1-10 C atoms in the alkyl part and 6-22 C atoms in the aryl part, OR6 or NR6R7, where 2 radicals X may also be joined to each other, n = 1-4 which corresponds to the oxidation number of M1 minus 2, R1 = H or a C1-C40 radical, R2 = substituted or unsubstituted C6-C40-aryl radical or C2-C40-heteroarom. radical containing  $\geq 1$  heteroatom selected from O, N, S and P, R3 = H or a C1-C40 radical, or the radicals R2 and R3 together form a ring system, R4 = H or a C1-C40 radical, R5 = C1-C40 radical, and Z = divalent group CR8R9-CR10R11, where R8-11 = H or a C1-C40 radical. C3H6 was polymerized in the presence of MAO, AlEt3, SiO2-supported 1,2-ethanediylbis[2,7-dimethyl-4-(4'-tert-butylphenyl)indenyl]zirconium dichloride (preparation given) for 1 h at 65° to give isotactic polypropylene having m.p. 156.4°.

IT 710280-69-6P

RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)

(silica supported; transition metal biscyclopentadienyl complex for manufacture of stereoregular polypropylene)

RN 710280-69-6 HCAPLUS

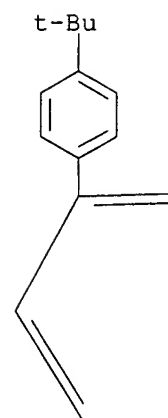
CN Zirconium, dichloro[1,2-ethanediylbis[(1,2,3,3a,7a-η)-7-[4-(1,1-dimethylethyl)phenyl]-2,4-dimethyl-1H-inden-1-ylidene]]- (9CI) (CA INDEX NAME)

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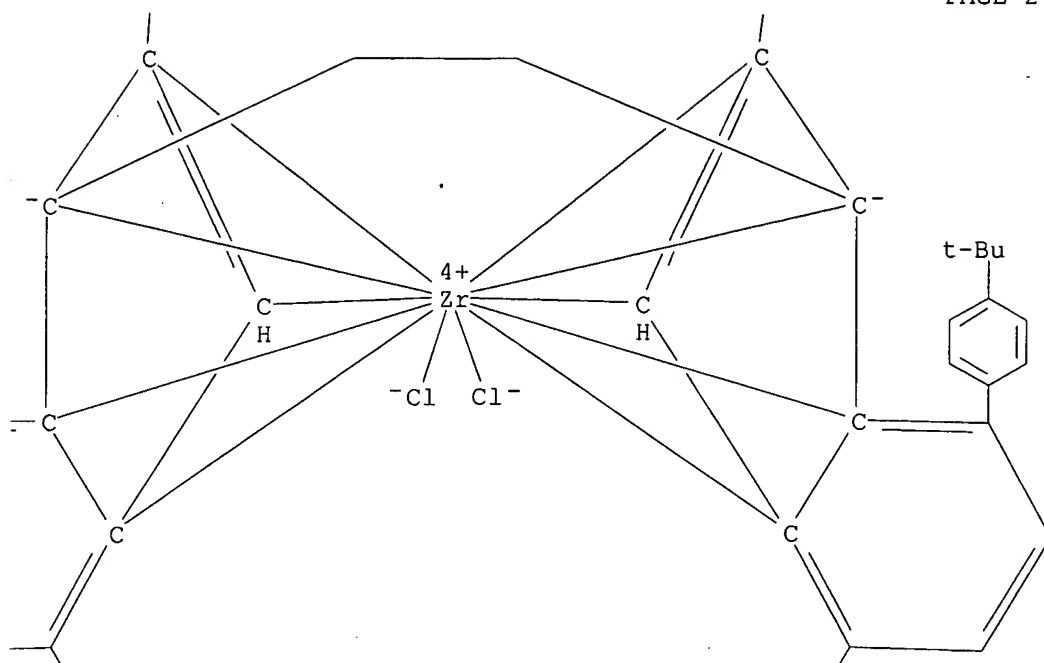
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PAGE 2-A



PAGE 2-B



PAGE 3-B

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L65 ANSWER 2 OF 2 HCAPLUS COPYRIGHT 2007 ACS on STN  
 AN 2004:509967 HCAPLUS  
 DN 141:72034  
 TI Organometallic complexes of transition metals as catalysts for olefin polymerization  
 IN Schulte, Joerg; Schottek, Joerg; Okumura, Yoshikuni  
 PA Basell Polyolefine GmbH, Germany  
 SO Ger. Offen., 19 pp.  
 CODEN: GWXXBX  
 DT Patent  
 LA German  
 FAN.CNT 2

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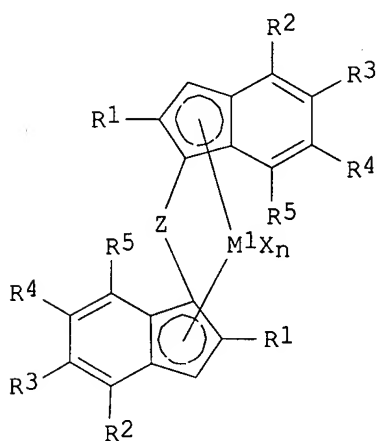
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OS MARPAT 141:72034  
 GI



I

AB Organotransition metal complexes of the formula I have very high activity for propylene polymerization when activated with MAO, where M1 = a transition metal of Groups 3-6 or a lanthanide metal, X = halogen, H, C1-20 alkyl, C2-20 alkenyl, C6-22 aryl or alkylaryl or arylalkyl with 1-10 carbon atoms in the alkyl residue and 6-22 carbon atoms in the aryl residue, alkyloxyl or amino groups, n = 1-4, R1 = H or C1-40 hydrocarbon residue, R2 = substituted or unsubstituted C6-40 aryl residue or C2-40 heteroarom. residue having O, N, S or P heteroatoms, R3 = H or C1-40 hydrocarbon residue, or R2 and R3 form a ring system, R4 = H or C1-40 hydrocarbon residue, R5 = C1-40 hydrocarbon residue, and Z = a bridging group CR8R9CR10R11 where R8-R11 is H or a C1-40 hydrocarbon residue. Thus, propylene was homopolymerized in the presence of MAO, AlEt3, SiO2-supported 1,2-Ethanediybis(2,7-dimethyl-4-(4'-tert-butylphenyl)indenyl)zirconium dichloride (preparation given) for 1 h at 65° to give polypropylene having m.p. 156.4°, Mw/Mn 3.0 and activity 0.82 kg PP/g·h.

IT 709675-31-0P

RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)

(metallocene catalysts for propylene polymerization)

RN 709675-31-0 HCAPLUS

CN Zirconium, dichloro[1,2-ethanediybis[(1,2,3,3a,7a-η)-4-[4-(1,1-dimethylethyl)phenyl]-2,7-dimethyl-1H-inden-1-ylidene]]- (9CI) (CA INDEX NAME)



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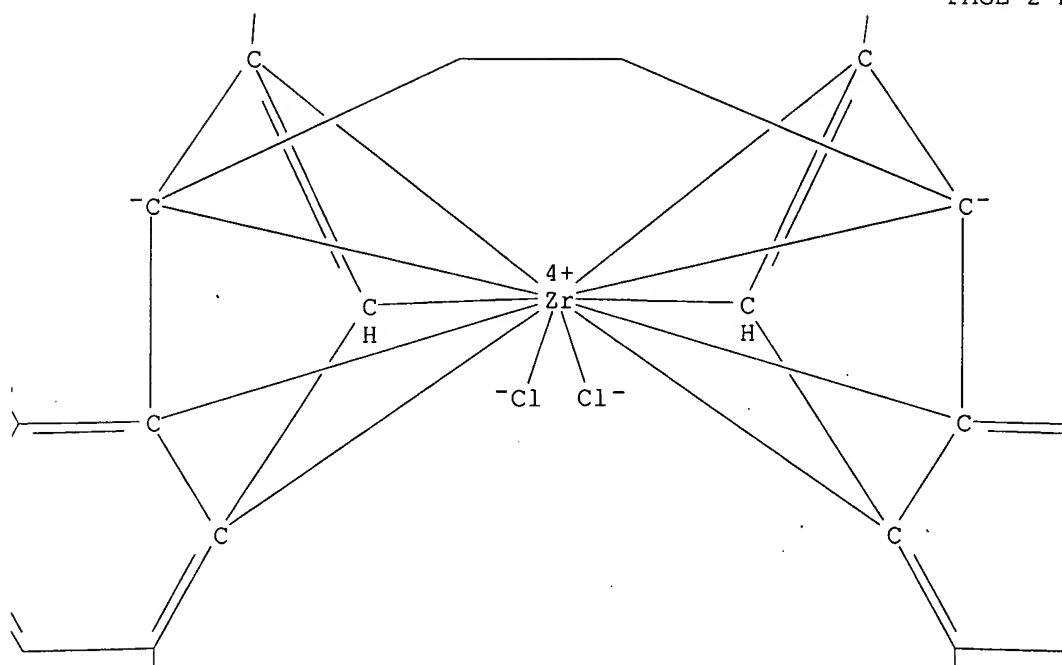
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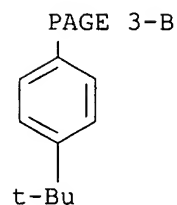
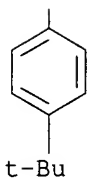


PAGE 2-B



PAGE 2-C





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DICTIONARY FILE UPDATES: 25 FEB 2007 HIGHEST RN 923060-60-0

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TSCA INFORMATION NOW CURRENT THROUGH June 30, 2006

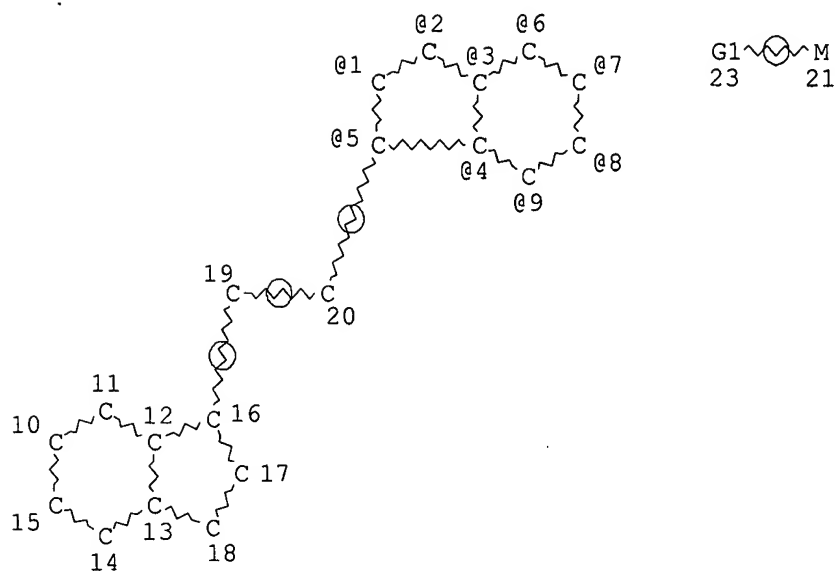
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<http://www.cas.org/ONLINE/UG/regprops.html>

=> => d sta que 126

L24 STR



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DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

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NUMBER OF NODES IS 22

STEREO ATTRIBUTES: NONE

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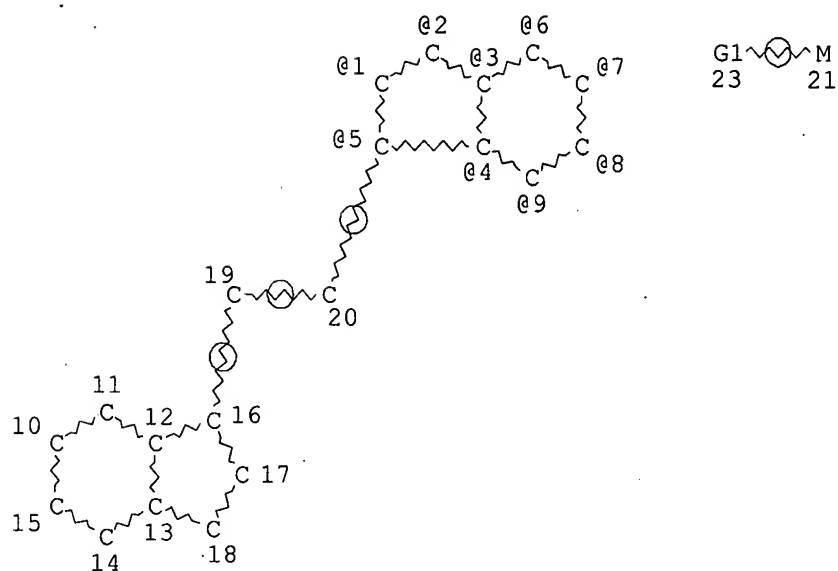
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2439 ANSWERS

SEARCH TIME: 00.00.02

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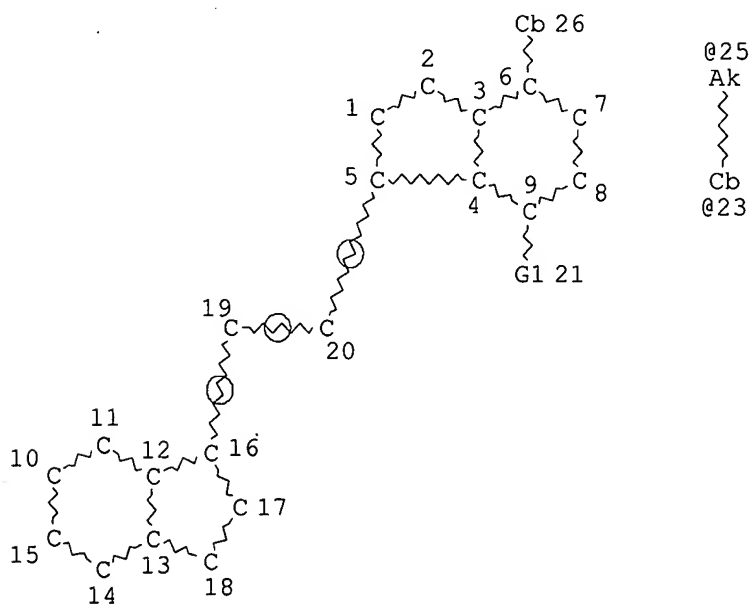
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 DEFAULT MLEVEL IS ATOM  
 DEFAULT ECLEVEL IS LIMITED

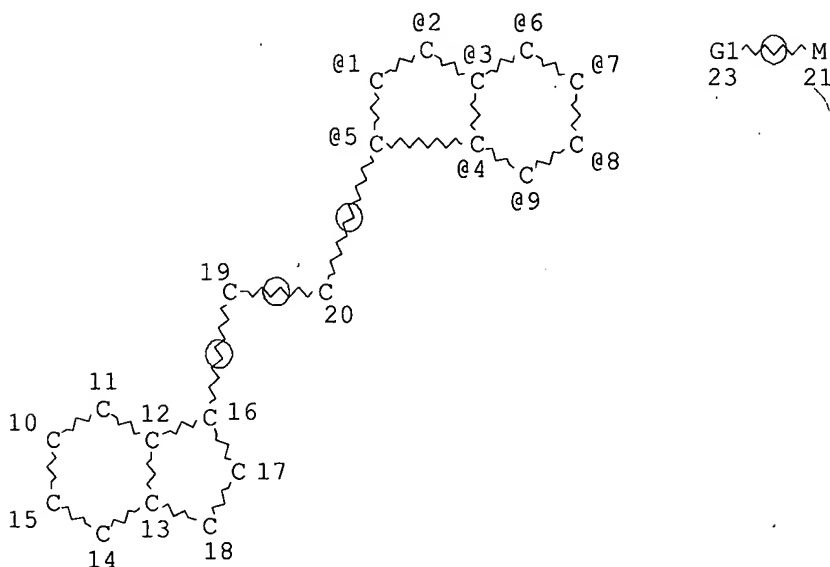
GRAPH ATTRIBUTES:  
 RING(S) ARE ISOLATED OR EMBEDDED  
 NUMBER OF NODES IS 24

STEREO ATTRIBUTES: NONE  
 L46 102 SEA FILE=REGISTRY SUB=L26 SSS FUL L44

100.0% PROCESSED 2435 ITERATIONS  
 SEARCH TIME: 00.00.01

102 ANSWERS

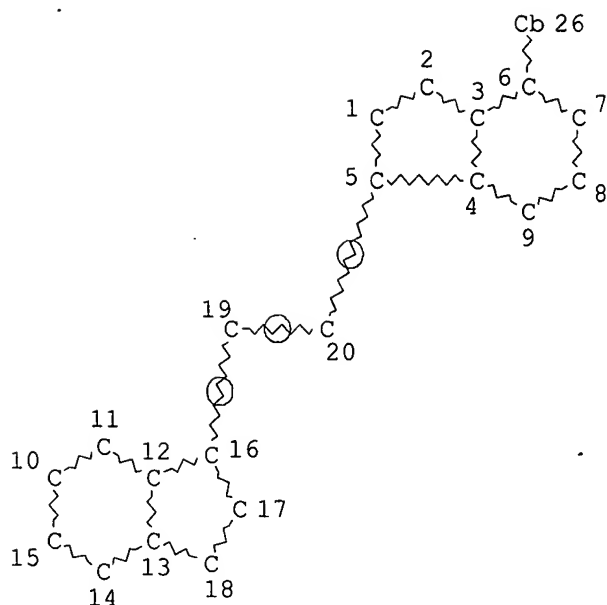
=> d sta que 150  
 L24 STR



VAR G1=4/5/1/2/3/6/7/8/9  
 NODE ATTRIBUTES:  
 NSPEC IS R AT 21  
 DEFAULT MLEVEL IS ATOM  
 DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:  
 RING(S) ARE ISOLATED OR EMBEDDED  
 NUMBER OF NODES IS 22

STEREO ATTRIBUTES: NONE  
 L26 2439 SEA FILE=REGISTRY SSS FUL L24  
 L49 STR



NODE ATTRIBUTES:  
 DEFAULT MLEVEL IS ATOM  
 DEFAULT ECLEVEL IS LIMITED

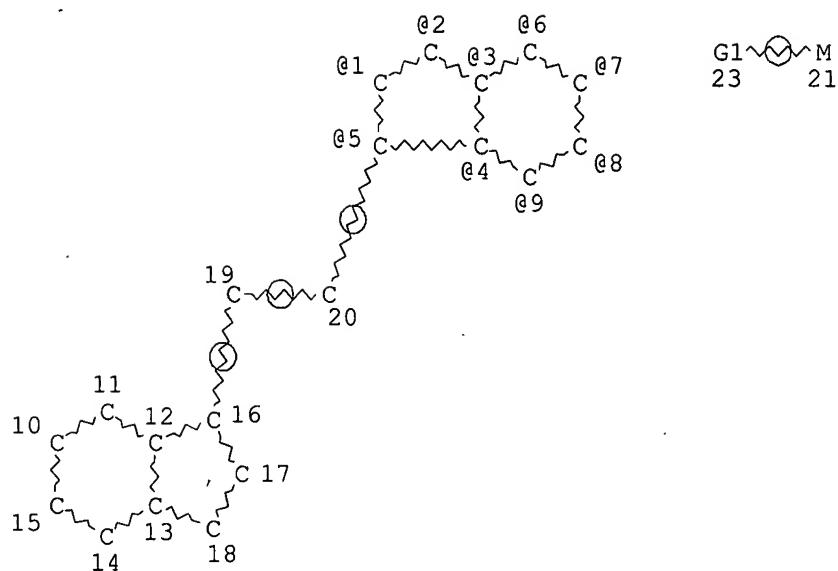
GRAPH ATTRIBUTES:  
 RING(S) ARE ISOLATED OR EMBEDDED  
 NUMBER OF NODES IS 21

STEREO ATTRIBUTES: NONE  
 L50 144 SEA FILE=REGISTRY SUB=L26 SSS FUL L49

100.0% PROCESSED 2439 ITERATIONS  
 SEARCH TIME: 00.00.01

144 ANSWERS

=> d sta que 157  
 L24 STR



VAR G1=4/5/1/2/3/6/7/8/9

NODE ATTRIBUTES:

NSPEC IS R AT 21

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

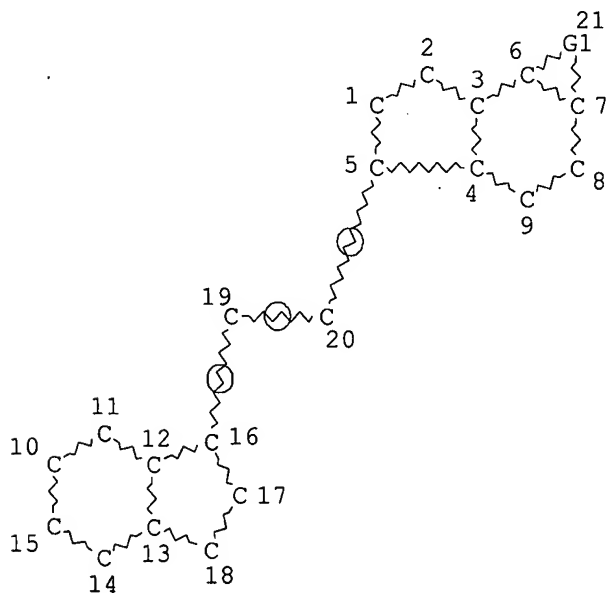
RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 22

STEREO ATTRIBUTES: NONE

L26 2439 SEA FILE=REGISTRY SSS FUL L24

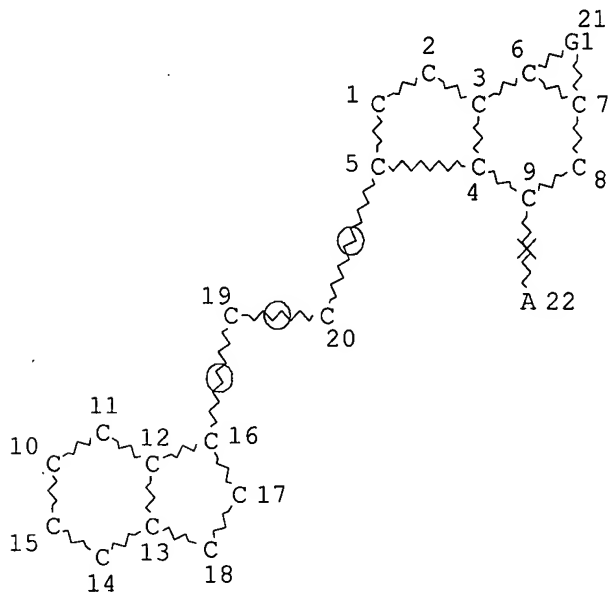
L52 STR



REP G1=(1-20) A



```
L54      1299 SEA FILE=REGISTRY SUB=L26 SSS FUL L52
L55      88 SEA FILE=REGISTRY ABB=ON  PLU=ON  L54 NOT ?FULLER?/CNS
L56      STR
```



```
100.0% PROCESSED      86 ITERATIONS  (    72 INCOMPLETE)      73 ANSWERS
SEARCH TIME: 00.00.12
```

jan delaval - 26 february 2007

L2 6 S E3  
 E SCHULTE J/AU  
 L3 144 S E3-E9,E32-E34,E44,E45  
 E SCHOTTEK/AU  
 L4 52 S E8-E10  
 E OKUMURA/AU  
 E OKUMURA Y/AU  
 L5 202 S E3  
 E OKUMURA YOSH/AU  
 L6 17 S E19  
 E OKUMURA NAME/AU  
 L7 8 S E4  
 E YOSHIKUNI/AU  
 L8 1 S E26  
 E BASELL/PA,CS  
 L9 590 S E3,E4 OR BASELL?/PA,CS  
 SEL RN L1

FILE 'REGISTRY' ENTERED AT 10:51:52 ON 26 FEB 2007

L10 22 S E1-E22  
 L11 2 S L10 AND C44H48CL2ZR

FILE 'HCAPLUS' ENTERED AT 10:54:01 ON 26 FEB 2007

L12 971 S L2-L9 NOT L1

FILE 'HCAPLUS' ENTERED AT 10:54:08 ON 26 FEB 2007

FILE 'REGISTRY' ENTERED AT 10:54:11 ON 26 FEB 2007

FILE 'HCAPLUS' ENTERED AT 10:54:12 ON 26 FEB 2007

L13 TRA L12 1- RN : 3958 TERMS

FILE 'REGISTRY' ENTERED AT 10:54:44 ON 26 FEB 2007

L14 3958 SEA L13  
 L15 1050 S L14 AND CCS/CI  
 L16 994 S L15 AND NR>=4  
 L17 750 S L16 AND ZR/ELS  
 L18 STR  
 L19 SCR 1918 OR 2049 OR 1988 OR 1923 OR 1984 OR 1983 OR 1925 OR 200  
 L20 50 S L18 AND L19  
 L21 STR L18  
 L22 4 S L21  
 L23 29 S L21 AND L19  
 L24 STR L21  
 L25 22 S L24  
 L26 2439 S L24 FUL  
 SAV TEMP L26 LEE537/A  
 L27 2 S L10 AND L26  
 L28 44 S L14 AND L26  
 L29 46 S L27,L28  
 L30 358 S L26 AND 29428.2.2/RID  
 L31 111 S L26 AND 29428.2.1/RID  
 L32 11 S L26 AND 67933.1/RID  
 L33 16 S L26 AND 52968.1/RID  
 L34 33 S L26 AND 29428.3/RID  
 L35 49 S L26 AND 29428.1/RID  
 L36 578 S L30-L35  
 L37 569 S L26 AND 29428/RID  
 L38 596 S L36,L37  
 L39 15 S L26 AND 67933/RID

L40 24 S L26 AND 52968/RID  
L41 608 S L38-L40  
L42 1831 S L26 NOT L29,L41  
L43 621 S L42 NOT ?FULLER?/CNS  
L44 STR L24  
L45 5 S L44 SAM SUB=L26  
L46 102 S L44 FUL SUB=L26  
SAV TEMP L46 LEE537A/A  
L47 1 S L46 NOT ?FULLER?/CNS  
L48 2 S L27,L47  
L49 STR L44  
L50 144 S L49 FUL SUB=L26  
SAV L50 LEE537B/A  
L51 42 S L50 NOT L46  
L52 STR L49  
L53 50 S L52 SAM SUB=L26  
L54 1299 S L52 FUL SUB=L26  
DEL LEE537B/A  
SAV TEMP LEE537B/A L50  
SAV TEMP L54 LEE537C/A  
L55 88 S L54 NOT ?FULLER?/CNS  
L56 STR L52  
L57 73 S L56 FUL SUB=L55  
SAV TEMP L57 LEE537D/A  
L58 1 S L57/COM  
L59 1 S L41 AND L46  
L60 25 S L41 AND L50  
L61 3 S L41 AND L54  
L62 24 S L60 NOT L48,L59

FILE 'HCAOLD' ENTERED AT 11:33:56 ON 26 FEB 2007

L63 0 S L48

FILE 'HCAPLUS' ENTERED AT 11:33:58 ON 26 FEB 2007

L64 2 S L48

L65 2 S L64 AND L1-L9

FILE 'USPATFULL' ENTERED AT 11:34:10 ON 26 FEB 2007

L66 1 S L48

FILE 'REGISTRY' ENTERED AT 11:34:24 ON 26 FEB 2007

FILE 'USPATFULL' ENTERED AT 11:34:32 ON 26 FEB 2007

FILE 'HCAPLUS' ENTERED AT 11:34:42 ON 26 FEB 2007

FILE 'REGISTRY' ENTERED AT 11:34:58 ON 26 FEB 2007

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